

What is claimed is:

1. A method for making an array of opto-electronic devices from a multilayer epitaxial film, comprising:

5 separating the multilayer epitaxial film into a plurality of segments;

transferring the segments to a first substrate; and
confining active regions in the respective segments on the first substrate so that the active regions form the array.

2. The method of claim 1, further comprising:

10 forming a lift-off layer on a second substrate; and
growing the multilayer epitaxial film on the lift-off layer,

wherein the separating step comprises forming grooves on the multilayer epitaxial film so as to reach the lift-off
15 layer and removing the lift-off layer whereby the epitaxial film is separated into the segments.

3. The method of claim 1, wherein:

the confining step further comprises;
implanting ion into the respective segments so as to
20 enclose the active regions.

4. The method of claim 3, wherein:

a dose of the ions is not less than 10^{-15} cm⁻².

5. The method of claim 1, wherein:

the confining step further comprises;
25 etching areas other than the active regions in the respective segments.

6. The method of claim 1, wherein:
the confining step further comprises;
depositing contacts on the respective segments.
7. The method of claim 1, further comprising:
5 adhering the multilayer epitaxial film on a tape; and
extending the tape so as to widen pitches between the
segments on the tape.
8. The method of claim 1, further comprising:
adhering the multilayer epitaxial film on a first tape;
10 extending the first tape so as to widen pitches between
the segments on the tape in a first direction;
transferring the segments from the first tape to a second
tape; and
extending the second tape so as to widen pitches between
15 the segments on the tape in a second direction.
9. The method of claim 7, wherein an expanding rate of the
tape is in a range of from 100 % to 500 %.
10. A method for making an array of opto-electronic devices
from a multilayer epitaxial film, comprising:
20 separating the multilayer epitaxial film into a plurality
of segments;
transferring the segments to a first substrate; and
implanting ions into the respective segments on the first
substrate so as to confine active regions enclosed in areas
25 to which the ions are implanted so that the active regions
form the array.

11. The method of claim 10, further comprising:
forming a lift-off layer on a second substrate; and
growing the multilayer epitaxial film on the lift-off
layer,
- 5 wherein the separating step comprises forming grooves
on the multilayer epitaxial film so as to reach the lift-off
layer and removing the lift-off layer whereby the epitaxial
film is separated into the segments.
12. The method of claim 10, wherein:
- 10 a dose of the ions is not less than 10^{-15} cm⁻².
13. The method of claim 10, further comprising:
adhering the multilayer epitaxial film on a tape; and
extending the tape so as to widen pitches between the
segments on the tape.
- 15 14. The method of claim 10, further comprising:
adhering the multilayer epitaxial film on a first tape;
extending the first tape so as to widen pitches between
the segments on the tape in a first direction;
transferring the segments from the first tape to a second
20 tape; and
extending the second tape so as to widen pitches between
the segments on the tape in a second direction.
15. The method of claim 13, wherein an expanding rate of
the tape is in a range of from 100 % to 500 %.
- 25 16. A method for making an array of opto-electronic devices
from a multilayer epitaxial film, comprising:

separating the multilayer epitaxial film into a plurality of segments;

transferring the segments to a first substrate; and
confining active regions in the respective segments on
5 the first substrate so that the active regions form the array.

17. The method of claim 16, further comprising:

forming a lift-off layer on a second substrate; and
growing the multilayer epitaxial film on the lift-off
layer,

10 wherein the separating step comprises forming grooves
on the multilayer epitaxial film so as to reach the lift-off
layer and removing the lift-off layer whereby the epitaxial
film is separated into the segments.

18. The method of claim 16, further comprising:

15 adhering the multilayer epitaxial film on a tape; and
extending the tape so as to widen pitches between the
segments on the tape.

19. The method of claim 16, further comprising:

adhering the multilayer epitaxial film on a first tape;
20 extending the first tape so as to widen pitches between
the segments on the tape in a first direction;

transferring the segments from the first tape to a second
tape; and

extending the second tape so as to widen pitches between
25 the segments on the tape in a second direction.

20. The method of claim 18, wherein an expanding rate of

the tape is in a range of from 100 % to 500 %.